

Claims:

1. A method for withdrawing and recovering VOC and HAP emissions in the production of a lignocellulosic product, which comprises:

forming a mat of lignocellulosic material;

5 bonding together said mat in a product formation press with an adhesive material to produce said lignocellulosic product, the product formation press being substantially closed to the surrounding atmosphere to contain the VOC and HAP emissions and to substantially prevent the VOC and HAP emissions from being released from within the emission control system;

10 forming VOC and HAP emissions during the production of said lignocellulosic product in said product formation press;

withdrawing at least about 50 % of said VOC and HAP emissions produced during the formation of said lignocellulosic product prior to removal of said lignocellulosic product from said product formation press; and

15 recovering, without releasing to the atmosphere, said VOC and HAP emissions, which are withdrawn from said product formation press.

2. The method of claim 1, wherein said VOC and HAP emissions are continuously withdrawn from said product formation press during the formation of said lignocellulosic product.

20 3. The method claim 1, wherein said VOC and HAP emissions are continuously recovered during the formation of said lignocellulosic product.

4. The method of claim 1, wherein substantially no steam is introduced into said product formation press, from a source outside said product formation press, during the production of said lignocellulosic product.

25 5. The method of claim 1, wherein the step of withdrawing said VOC and HAP emissions from said product formation press during the formation of said lignocellulosic product commences no later than when said VOC and HAP emissions are formed.

30 6. The method of claim 1, which further includes the step of withdrawing prior to the recovery step a substantial portion of said VOC and HAP emissions from said emission control system.

7. The method of claim 1, wherein the VOC and HAP emissions are withdrawn from said product formation press under vacuum.

8. The method of claim 1, which further includes the step of condensing said VOC and HAP emissions, which have been withdrawn from said product formation press.

9. The method of claim 1, which includes the step of combusting said VOC and HAP emissions which have been withdrawn from said product formation press.

10. The method of claim 1, wherein said product is selected from a group consisting of particleboard and fiberboard.

11. The method of claim 1, wherein said product comprises an oriented strand board.

12. The method of claim 1, wherein said product is a multilayer product.

13. The method of claim 1, wherein the amount of air within the product formation press in the production of the lignocellulosic product is reduced by at least about 50 % of the amount of air within a product formation press employed in the production of a comparable lignocellulosic product which is produced without withdrawing said VOC and HAP emissions from said product formation press during the production of said comparable lignocellulosic product.

14. The method of claim 1, wherein the amount of ambient air which passes through the product formation press during the formation of said lignocellulosic product is reduced by at least about 50 % of the amount of ambient air passing through the product formation press during the production of a comparable lignocellulosic product which is produced without withdrawing said VOC and HAP emissions from said product formation press during the production of said comparable lignocellulosic product.

15. The method of claim 1, wherein pressure in said product formation press does not exceed about 10 psi during the formation of said lignocellulosic product.

16. The method of claim 1, wherein moisture content of said mat prior to the formation of said lignocellulosic product in said product formation press is more than about 6 % by weight, based on the weight said mat.

17. The method of claim 1, wherein time for decompressing and degassing said lignocellulosic product is at least about 60 % less than the time for decompressing and degassing a lignocellulosic product which is produced without withdrawing of said VOC and HAP emissions during product formation.

18. The method of claim 1, wherein the emission control system comprises at least one platen.

19. The method of claim 1, wherein the emission control system comprises a plurality of platens.

20. The method of claim 1, wherein the emission control system includes at least one screen.

21. A method for recovering and controlling VOC and HAP emissions, which comprises:

forming a mat of lignocellulosic material, said mat being bonded together by an adhesive material in an emission control system, said emission control system defining a product formation press for withdrawing said VOC and HAP emissions from said product formation press, said product formation press being substantially closed to the surrounding atmosphere;

forming VOC and HAP emissions during the production of said mat in said emission control system;

withdrawing said VOC and HAP emissions during the formation of said mat by evacuating said VOC and HAP emissions and controlling VOC and HAP emissions from said emission control system; and

recovering said VOC and HAP emissions which are withdrawn from said emission control system.

22. The method of claim 21, wherein said VOC and HAP emissions are continuously withdrawn from said emission control system during the formation of said lignocellulosic product.

23. The method claim 21, wherein said VOC and HAP emissions are continuously recovered during the formation of said lignocellulosic product.

24. The method of claim 21, wherein substantially no steam is introduced into said emission control system, from a source outside said emission control system, during the production of said lignocellulosic product.

25. The method of claim 21, wherein the step of withdrawing said VOC and HAP emissions from said emission control system during the formation of said lignocellulosic product commences no later than when said VOC and HAP emissions are formed.

26. The method of claim 21, which further includes the step of withdrawing prior to the recovery step a substantial portion of said VOC and HAP emissions from said emission control system.

27. The method of claim 21, wherein the VOC and HAP emissions are withdrawn from said emission control system under vacuum.

28. The method of claim 21, which further includes the step of condensing said VOC and HAP emissions which have been withdrawn from said emission control system.

29. The method of claim 21, which includes the step of combusting said VOC and HAP emissions which have been withdrawn from said emission control system.

30. The method of claim 21, wherein said product is selected from a group consisting of particleboard and fiberboard.

31. The method of claim 21, wherein said product comprises an oriented strand board.

32. The method of claim 21, wherein said product is a multilayer product.

33. The method of claim 21, wherein the amount of ambient air which passes through the emission control system in the production of the lignocellulosic product is reduced by at least about 50 % of the amount of ambient air which passes through a press apparatus employed in the production of a comparable

lignocellulosic product which is produced without withdrawing said VOC and HAP emissions from said press apparatus during the production of said comparable lignocellulosic product.

34. The method of claim 21, wherein the amount of air within the product formation press during the formation of said lignocellulosic product is reduced by at least about 50 % of the amount of air within the product formation press during the production of a comparable lignocellulosic product which is produced without withdrawing said VOC and HAP emissions from said product formation press during the production of said comparable lignocellulosic product.

35. The method of claim 21, wherein pressure in said emission control system does not exceed about 10 psi during the formation of said lignocellulosic product.

36. The method of claim 21, wherein the moisture content prior to the formation of said lignocellulosic product in said product formation press is more than about 6 % by weight, based on the weight said mat.

37. The method of claim 21, wherein the time for decompressing and degassing said lignocellulosic product is at least about 60 % less than the cycle time for decompressing and degassing a lignocellulosic product which is produced without withdrawing of said VOC and HAP emissions during product formation.

38. The method of claim 21, wherein the emission control system comprises at least one platen.

39. The method of claim 21, wherein the emission control system comprises a plurality of platens.

40. The method of claim 21, wherein the emission control system includes at least one screen.

41. An apparatus for recovering and controlling VOC and HAP emissions, which comprises:

an emission control system for recovering and controlling VOC and HAP emissions formed during the production of a mat of lignocellulosic material, said mat being bonded together by an adhesive material,

said emission control system defining a product formation press for withdrawing said VOC and HAP emissions from said product formation press, said product formation press being substantially closed to the surrounding atmosphere; and

5 at least one system for recovering and controlling VOC and HAP emissions from said emission control system by withdrawing said VOC and HAP emissions during the formation of said mat by evacuation without releasing into the surrounding atmosphere said VOC and HAP which are withdrawn from said emission control system.

10 42. The apparatus of claim 41, wherein the emission control system comprises at least one platen.

 43. The apparatus of claim 41, wherein the amount of air within the product formation press during the formation of said lignocellulosic product is reduced by at least about 50 % of the amount of air within the product formation
15 press during the production of a comparable lignocellulosic product which is produced without withdrawing said VOC and HAP emissions from said product formation press during the production of said comparable lignocellulosic product.

 44. The apparatus of claim 41, wherein the emission control system includes at least one screen.

20 45. The apparatus of claim 41, wherein said product emission press includes a plurality of channels in communication with said product formation press for recovering and controlling said VOC and HAP emissions.

 46. The apparatus of claim 41, wherein a projecting flange is connected to said product formation press for substantially closing said product
25 formation press to the surrounding atmosphere.

 47. The apparatus of claim 41, wherein said product formation press further includes a projecting flange for substantially closing said product formation press to the surrounding atmosphere.

 48. The apparatus of claim 43, wherein a projecting flange is attached
30 to at least one said plurality of platens for substantially closing said product formation press to the surrounding atmosphere.

49. The apparatus of claim 42, wherein a projecting flange attached to at least one said platen for substantially closing said product formation press to the surrounding atmosphere.

50. The apparatus of claim 46, wherein said system for recovering and controlling VOC and HAP emissions from said emission control system is connected to said projecting flange.

51. A system employed in conjunction with an emission control system for recovering and controlling VOC and HAP emissions during the formation of a lignocellulosic product, said emission control system defining a product formation press for withdrawing said VOC and HAP emissions from said product formation press, which comprises:

an apparatus for surrounding and substantially closing said product formation press so as to control the amount of dilutant air flowing into the product formation press during the formation of said lignocellulosic product, said VOC and HAP emissions being withdrawn by evacuation during the formation of said mat for recovering and controlling VOC and HAP emissions from said emission control system without releasing said VOC and HAP which are withdrawn from said emission control system to the atmosphere.

52. The system of claim 51, wherein said apparatus further comprises system for withdrawing said VOC and HAP emissions being withdrawn by evacuation during the formation of said mat for recovering and controlling VOC and HAP emissions from said emission control system without releasing said VOC and HAP which are withdrawn from said emission control system to the atmosphere.

53. The system of claim 51, which further comprises an assembly for connecting said apparatus to said product formation press.

54. The system of claim 51, said product formation press includes at least one platen, and said system includes system for attaching said apparatus to each said platen.

55. The apparatus of claim 51, wherein said apparatus includes a projecting flange connected to said product formation press for substantially preventing the VOC and HAP emissions from being released to the surrounding atmosphere from within the emission control system.

5 56. The apparatus of claim 55, wherein said projecting flange is attached to at least one said plurality of platens for substantially closing said product formation press to the surrounding atmosphere.

57. The apparatus of claim 54, wherein said projecting flange is attached to at least one said platen for substantially closing said product formation
10 press to the surrounding atmosphere.

58. The apparatus of claim 46, wherein said system for recovering and controlling VOC and HAP emissions from said emission control system is connected to said projecting flange.

59. The apparatus of claim 51, wherein the amount of air within the
15 product formation press during the formation of said lignocellulosic product is reduced by at least about 50 % of the amount of air within the product formation press during the production of a comparable lignocellulosic product which is produced without withdrawing said VOC and HAP emissions from said product formation press during the production of said comparable lignocellulosic product.

20 60. The apparatus of claim 51, wherein said projecting flange extends about the periphery of the product formation press so that it substantially closes the emission control system with respect to the surrounding atmosphere.

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